

Weill Medical College of Cornell University

Project Name ...

Healthy Behaviors Program

Principal Investigator ...

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Background / Significance of Problem ...

Data from clinical trials and statewide registries of percutaneous transluminal coronary angioplasty (PTCA) and stents show that between 30% and 40% of angioplasty patients have recurrent angina, myocardial infarction, death or repeat procedures by two years' of follow-up. Given the high recurrence rate, a World Health Organization expert committee has recommended that cardiac rehabilitation including interventions directed at reducing cholesterol through diet or lipid lowering agents, reducing weight, increasing exercise and stopping smoking should be provided for all patients undergoing PTCA. In spite of consensus that behavior change is vital for PTCA patients, post-procedure rehabilitation efforts have been ineffectively implemented in this population. Patients who have undergone angioplasty may underestimate their risk of future coronary artery disease and the potential benefits of modifying their risk behaviors- at present and in the future. Researchers have suggested that they study of human economic behavior, specifically net-present value economic theory, holds promise as a theoretical underpinning for behavioral interventions applied to health. Our current randomized controlled trial among PTCA patients tests whether the "net present value" approach to presenting risk will enhance motivation to make behavioral changes, and we are comparing the outcomes to the standard "future value" approach.

Research Question ...

The study is designed to evaluate whether a novel behavioral intervention based on individualized feedback of risk profiles framed as the opportunity to reduce one's biologic age (net-present value) is more effective in reducing mortality and major cardiovascular morbidity than the standard risk reduction approach (future value). Since the trial is not closed, all preliminary data have been analyzed without regard to randomization group.

Findings To-Date ...

- Participant recruitment began September, 1999 and baseline assessments and intervention were completed with 660 patients as of March, 2001. Follow-up sessions with enrolled patients occur every three months for two years post-procedure.
- Demographics and clinical characteristics: The mean age of the patients is 62 years (± 11), and 27% are female; 22% are African American or Latino; 63% were married; 42% were

college graduates; 43% were working full time, and 37% were retired. Patients enrolled have presented with moderate coronary artery disease; 58% had unstable angina prior to angioplasty; 37% had a prior myocardial infarction. The mean ejection fraction is borderline normal (51 ± 10) and the majority (65%) received angioplasty or stenting in only one vessel. At baseline only 17-22% of our sample had undergone prior bypass surgery or angioplasty/stenting; 57% had hypertension; and 26%, diabetes; 65% had only one vessel angioplasty/stent, while 26% had two vessels, and 8% three or more vessels. Depressive symptoms were assessed in the baseline interview using the Center for Epidemiological Studies depression scale (CES-D). Scores on this measure range from 0 to 60, with higher scores indicating higher depressive symptoms. One-third (33%) of patients scored 16 on the scale, the standard criterion indicating possible clinically significant depression. 33% of patients were depressed at baseline and 15% had no social support. At 12 months, 12% had persistent depression. Baseline depression ($p=0.004$) and poor social support ($p=0.04$) predicted depression 1 year after angioplasty.

- [•] With respect to multi-behavior change at one year, 59% of patients reached action on at least one health behavior and 26% on two or more behaviors. In total, 33% of patients reached maintenance on one behavior and 17% reached maintenance on two or more behaviors. Final two year assessment has not yet been completed.
- [•] Behavior changes of interest included increasing physical activity, smoking cessation, cholesterol reduction, weight loss, and controlling diabetes. On average, patients had 3-6 risk factors that were recommended for change, from which they chose 2-3 for change. The most common risk factors chosen for change were overall physical activity, smoking cessation and weight loss. Patients had high self-efficacy immediately after angioplasty. For any given behavior change, patients were in either the precontemplation, contemplation, preparation, action or maintenance stage of change (as defined by the Transtheoretical Model). Immediately after angioplasty, most patients reported they were in the preparation stage on their chosen risk factors, which is noteworthy because, in most studies, the majority of patients are either in precontemplation or in action/maintenance. Implications ...

[for multibehavioral and multi-theoretical approaches to behavior change]

We conclude that angioplasty patients have a problem in initiation and maintenance of multiple-behavior change. In order to identify the characteristics, sequence, and attributes of patients who have successfully initiated and sustained behavior change in two or more behaviors at 12 months, patients were given the opportunity to select new factors, and the stage of change was assessed at each follow-up.

Future Research Directions ...

Finding an effective means to help patients modify their behavior presents a unique challenge. There is a problem in initiation and maintenance of multiple-behavior change among patients with chronic cardiac illness. Based on the analyzed results of our current trial, characteristics, sequence, and attributes of patients who have successfully initiated and sustained behavior change in two or more behaviors at 12 months will allow for future research to evaluate interventions that influences stages of change and behavior-specific self-efficacy. New randomized trials can build on the results of the current trial evaluating the two approaches to framing health risk information (present value vs. standard value) in motivating behavioral changes and improving two-year outcome.